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DOCKET NO. D-1992-030 CP-2

DELAWARE RIVER BASIN COMMISSION

**Cinnaminson Sewerage Authority
Wastewater Treatment Plant
Cinnaminson Township, Burlington County, New Jersey**

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Richard A. Alaimo Associates (Alaimo or consultant) on behalf of the Cinnaminson Sewerage Authority (CSA or docket holder) on March 6, 2012 (Application), for review of an existing wastewater treatment plant (WWTP) and upgrades to its headworks. New Jersey Pollutant Discharge Elimination System (NJPDES) Permit No. NJ0024007 for this project was approved by the New Jersey Department of Environmental Protection (NJDEP) on December 30, 2010, effective April 1, 2011. A modified NJPDES Permit was then issued on June 6, 2011, effective July 1, 2011. The docket holder submitted an application to the NJDEP for Treatment Works Approval (TWA) in February 2012 for this project. The NJDEP is expected to issue TWA approval shortly.

The Application was reviewed for continuation of the project in the Comprehensive Plan and approval under Section 3.8 of the *Delaware River Basin Compact*. The Burlington County Planning Board has been notified of pending action. A public hearing on this project was held by the DRBC on September 12, 2012.

A. DESCRIPTION

1. **Purpose.** The purpose of this docket is to renew the approval of an existing discharge from the 2.0 million gallons per day (mgd) CSA WWTP and to approve upgrades to the WWTP headworks.
2. **Location.** The CSA WWTP will continue to discharge treated effluent to Water Quality Zone 2 of the Delaware River at River Mile 108.82 via Outfall No. DSN001A, in the Cinnaminson Township, Burlington County, New Jersey as follows:

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
DSN001A	40° 01' 5.6"	75° 00' 35.6"

3. **Area Served.** The CSA WWTP will continue to service Cinnaminson Township and a portion of Palmyra Borough, both located in Burlington County, New Jersey. For the purpose of defining the Area Served, Section B (Type of Discharge) and D (Service Area) of the docket holder's Application are incorporated herein by reference, to the extent consistent with all other conditions contained in the DECISION Section of this docket.

4. **Physical Features.**

a. **Design Criteria.** The docket holder operates an existing 2.0 mgd WWTP. Upgrades to the headworks include replacing the grit removal and screening facilities, eliminating the leaks in the surge chamber, and adding an odor control process via an air scrubber to remove and scrub the sewer gases from the raw sewage.

b. **Facilities.** The existing WWTP consists of a manual bar screen and grit collector, an influent pump station, an equalization tank, six (6) primary settling tanks, two (2) aeration tanks, six (6) final settling tanks, a chlorine contact tank, an effluent pump station, a dissolved air flotation thickener, and three (3) belt presses.

The project facilities are located in the flood-fringe portion of the 100-year floodplain. Since the facility is located in the tidal portion of the basin, the Commission's *Flood Plain Regulations (FPR)* are not applicable.

Wasted sludge will continue to be hauled off-site by a licensed hauler for disposal at a (State-approved) facility.

c. **Water withdrawals.** The potable water supply in the project service area is supplied by the New Jersey American Water Company (NJAWC).

d. **NJPDES Permit / DRBC Docket.** Modified NJPDES Permit No. NJ0024007 was approved by the NJDEP on June 6, 2011 (effective July 1, 2011) and includes final effluent limitations for the project discharge of 2.0 mgd to surface waters classified by the NJDEP as Delaware River Zone 2. The following average monthly effluent limits are among those listed in the NJPDES Permit and meet or are more stringent than the effluent requirements of the DRBC.

EFFLUENT TABLE A-1: DRBC Parameters Included in NJPDES Permit

OUTFALL DSN001A (WWTP)		
PARAMETER	LIMIT	MONITORING
pH (Standard Units)	6 to 9 at all times	As required by NJPDES Permit
Total Suspended Solids	30 mg/l	As required by NJPDES Permit
BOD (5-Day at 20° C)	30 mg/l (88.5% minimum removal*)	As required by NJPDES Permit
Ammonia Nitrogen	35 mg/l	As required by NJPDES Permit

OUTFALL DSN001A (WWTP)		
PARAMETER	LIMIT	MONITORING
Fecal Coliform	200 colonies per 100 ml as a geo. avg.	As required by NJPDES Permit
Acute Toxicity	Action Level 50% Effluent **	As required by NJPDES Permit
Chronic Toxicity *	Monitor & Report **	As required by NJPDES Permit

* DRBC Requirement

** See FINDINGS Section for species

EFFLUENT TABLE A-2: DRBC Parameters Not Included in NJPDES Permit

OUTFALL DSN001A (WWTP)		
PARAMETER	LIMIT	MONITORING
Total Dissolved Solids*	Monitor & Report *	Quarterly **
CBOD20*	540 lbs/day *	Variable ***

* DRBC Requirement

** See DECISION Condition II.u.

*** See DECISION Condition II.x.

The NJDEP has required Phosphorous monitoring for the 2.0 mgd CSA WWTP. The DRBC does not require Phosphorous monitoring outside of Special Protection Waters (SPW).

e. Cost. The overall cost of this project is estimated to be \$2,025,256 (See DECISION Condition II.k.).

f. Relationship to the Comprehensive Plan. The 2.0 mgd CSA WWTP was added to the Comprehensive Plan on April 28, 1965 upon approval of Docket No. D-65-29 CP. Its continuation was approved on June 24, 1992 upon approval of Docket No. D-92-30 CP. Issuance of this docket will once again continue approval of the 2.0 mgd CSA WWTP in the Comprehensive Plan (See DECISION Condition I.c.).

B. FINDINGS

The purpose of this docket is to renew the approval of an existing discharge from the 2.0 million gallons per day (mgd) CSA WWTP and to approve upgrades to the WWTP headworks.

CBOD₂₀ Wasteload Allocation

The Commission's Water Quality Regulations provide for the allocation of the stream assimilative capacity where waste discharges would otherwise result in exceeding such capacity. It was determined in the late 1960's that discharges to the Delaware Estuary be limited to a total of 322,000 lbs/day of carbonaceous biochemical (first stage) oxygen demand (CBOD₂₀). In accordance with the Regulations, the assimilative capacity of each Delaware Estuary zone minus a reserve was originally allocated in 1968 among the individual dischargers based upon the concept of uniform reduction of raw waste in a zone (Zones 2, 3, 4 and 5). The totals and percent reduction for each zone are given in Table 1 of the Commission's *Status of CBOD₂₀ Wasteload*

Allocations (Revised October 1, 2000). The docket holder's WWTP discharges to Water Quality Zone 2 of the Delaware River at River Mile 108.82. Water Quality Zone 2 is currently over-allocated and reductions have occurred since the year 2000 in an attempt to balance the zone.

CBOD₂₀ Allocation History

Docket No. D-92-30 CP approved an allocation of 540 lbs/day of CBOD₂₀ on June 24, 1997.

CBOD₂₀ Determination

On July 14, 2010 the Commission adopted Resolution No. 2010-5 authorizing and directing the Executive Director to require point source dischargers to the Delaware Estuary to perform nutrient monitoring of their discharges at their own cost and expense for a period of up to 24 months. On September 20, 2011 the Commission's Modeling Monitoring and Assessment (MMA) Branch sent a letter to the docket holder requiring the 24 month sampling for their facility begin. The Commission's MMA Branch received confirmation that the first set of samples for this suite of nutrient parameters started in October 2011 and therefore is expected to finish in September 2013. BOD₅ and CBOD₂₀ were two of the parameters whose data was required as a result of this nutrient monitoring. As such, the docket holder is required to monitor BOD₅ and CBOD₂₀ concurrently on a monthly period through September 2013.

After September 2013, the docket holder will only be required to monitor for CBOD₂₀ on a quarterly basis. The sample should be taken concurrently with the BOD₅ sample. Should a BOD₅ to CBOD₂₀ ratio be established as a result of the nutrient monitoring program approved by Resolution No. 2010-5, the docket holder may request the removal of this monitoring entirely via letter to the Executive Director (See DECISION Condition II.u.). Until the Executive Director has approved the elimination of the sampling, samples should continue as required.

This docket shall continue approval for an allocation of 540 lbs/day of CBOD₂₀.

PCBs

The docket holder is required to monitor for 209 PCB congeners using Method 1668A as described in its approved Pollution Minimization Plans (PMPs) for PCBs as required in the NJPDES Permit (See DECISION Condition II.w.).

Toxicity

Zone 2 stream quality objectives exist for toxic pollutants. They include criteria to protect the taste and odor of ingested water and fish [Table 4 of DRBC's Water Quality Regulations (WQR)], to protect aquatic life (Table 5), and to protect human health (Tables 6 & 7). Toxicity in effluent is measured as Whole Effluent Toxicity (WET), and results from both acute and chronic exposures. The acute toxicity stream quality objective for Zone 2 is 0.3 Toxic

Units (TU_a = 0.3). The chronic toxicity stream quality objective for Zone 2 is 1.0 Toxic Units (TU_c = 1.0).

Acute Toxicity

The docket holder is required to perform Whole Effluent Toxicity (WET) tests to generate acute toxicity data on the fathead minnow (*Pimephales promelas*) as part of their existing NJPDES Permit. The DRBC is also requiring testing of the cladoceran (*Ceriodaphnia dubia*) since no dual data species testing supporting the elimination of one more restrictive species has been submitted to the Commission. Both species results shall be provided to the DRBC for review with the same monitoring frequency as that found in the NJPDES Permit (semi-annually). Results shall be submitted to the Commission annually with the report required in DECISION Condition II.d. of this docket. Monitoring shall be continued until at least 10 samples have been taken and no effect has been quantified.

Chronic Toxicity

The docket holder is required to perform semi-annual WET tests to generate chronic toxicity data on the cladoceran (*Ceriodaphnia dubia*) by the NJDEP as part of its NJPDES Permit. It has been the Commission's practice that two species be tested for toxicity for more than a decade now. The Commission has no data verifying that two species have been tested simultaneously and that the outcome of the tests suggests one species is more restrictive than the other. As such, the Commission is requiring the fathead minnow (*Pimephales promelas*) to be monitored in addition to cladoceran for Chronic effects. Samples shall be taken concurrently with acute samples to develop a correlation. Results shall be submitted to the Commission annually with the report required in DECISION Condition II.d. of this docket. Monitoring shall be continued until at least 10 samples have been taken and no effect has been quantified.

Other

At the project site, the tidal Delaware River has an estimated seven-day low flow with a recurrence interval of ten years of 1,663 mgd (2,574 cfs). The ratio of this low flow to the average design wastewater discharge from the 2.0 mgd CSA WWTP is 831.5 to 1.

The only two surface water intakes of record for public water supply within a 5 mile tidal influence of the project discharge are the Philadelphia Water Department's Baxter Facility and NJAWC's Delaware Facility, both of which are approximately 1.2 River Miles "upstream".

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

The limits in the NJPDES Permit are in compliance with Commission effluent quality requirements, where applicable.

The project is designed to produce a discharge meeting the effluent requirements as set forth in the Commission's *WQR*.

C. DECISION

I. Effective on the approval date for Docket No. D-1992-030 CP-2 below:

a. The projects described in Docket Nos. D-65-29 CP and D-92-30 CP are removed from the Comprehensive Plan to the extent that they are not included in Docket No. D-1992-030 CP-2; and

b. Docket Nos. D-65-29 CP and D-92-30 CP are terminated and replaced by Docket No. D-1992-030 CP-2; and

c. The project and the appurtenant facilities described in Section A "Physical Features" of this docket shall be added to the Comprehensive Plan.

II. The project and appurtenant facilities as described in Section A "Physical Features" of this docket are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the NJDEP in both its NJPDES Permit and TWA, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the Commission's *WQR*.

d. The docket holder shall comply with the requirements contained in the Effluent Tables in Section A.4.d. of this docket. The docket holder shall submit the required monitoring results directly to the DRBC Project Review Section. The monitoring results shall be submitted annually, absent any observed limit violations, by January 31. If a DRBC effluent limit is violated, the docket holder shall submit the result(s) to the DRBC within 30 days of the violation(s) and provide a written explanation that states the action(s) the docket holder has taken to correct the violation(s) and protect against any future violations.

e. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a

docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

f. If at any time the receiving treatment plant proves unable to produce an effluent that is consistent with the requirements of this docket approval, no further connections shall be permitted until the deficiency is remedied.

g. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

h. The discharge of wastewater shall not increase the ambient temperatures of the receiving waters by more than 5°F above the average 24-hour temperature gradient displayed during the 1961-1966 period, nor shall such discharge result in stream temperatures exceeding 86°F.

i. Sound practices of excavation, backfill and reseedling shall be followed to minimize erosion and deposition of sediment in streams.

j. Within 10 days of the date that construction of the project has started, the docket holder shall notify the DRBC of the starting date and scheduled completion date.

k. Within 30 days of completion of construction of the approved project, the docket holder is to submit to the attention of the Project Review Section of DRBC a Construction Completion Statement (“Statement”) signed by the docket holder’s professional engineer for the project. The Statement must (1) either confirm that construction has been completed in a manner consistent with any and all DRBC-approved plans or explain how the as-built project deviates from such plans; (2) report the project’s final construction cost as such cost is defined by the project review fee schedule in effect at the time the application was made; and (3) indicate the date on which the project was (or is to be) placed in operation. In the event that the final project cost exceeds the estimated cost used by the docket holder to calculate the DRBC project review fee, the statement must also include (4) the amount of any outstanding balance owed for DRBC review. The outstanding balance will equal the difference between the fee paid to the Commission and the fee calculated on the basis of the project’s final cost, using the formula and definition of “project cost” set forth in the DRBC’s project review fee schedule in effect at the time application was made.

l. The WWTP modifications shall be completed within three years of approval of this docket or the docket holder shall demonstrate to the Executive Director that it has expended substantial funds (in relation to the cost of the project) in reliance upon this docket approval. If the modifications have not been completed within three years of Docket Approval and the docket holder does not submit a cost analysis demonstrating substantial funds have been expended, Commission approval of the modifications to the existing WWTP shall expire. If this occurs, the docket holder shall file a new application with the Commission and receive Commission approval prior to initiating construction of any modifications.

m. The docket holder is permitted to treat and discharge wastewaters as set forth in the Area Served Section of this docket, which incorporates by reference Sections B (Type of Discharge) and D (Service Area) of the docket holder's Application to the extent consistent with all other conditions of this DECISION Section.

n. The docket holder shall make wastewater discharge in such a manner as to avoid injury or damage to fish or wildlife and shall avoid any injury to public or private property.

o. No sewer service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

p. Nothing in this docket approval shall be construed as limiting the authority of DRBC to adopt and apply charges or other fees to this discharge or project.

q. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

r. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

s. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

t. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

u. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that

supports the effluent specific correlation between TDS and specific conductance. Upon review, the Executive Director may modify the docket to allow the substitution of specific conductance for TDS monitoring.

v. The docket holder is prohibited from treating/pre-treating any hydraulic fracturing wastewater from sources in or out of the Basin at this time. Should the docket holder wish to treat/pre-treat hydraulic fracturing wastewater in the future, the docket holder will need to first apply to the Commission to renew this docket and be issued a revised docket allowing such treatment and an expanded service area. Failure to obtain this approval prior to treatment/pre-treatment will result in action by the Commission.

w. The docket holder shall continue to submit monitoring data and PMP Annual Reports to the Commission's Modeling, Monitoring and Assessment Branch as required in the existing NJPDES Permit.

x. The docket holder is required to monitor BOD₅ and CBOD₂₀ concurrently on a monthly period through September 2013. After September 2013, the docket holder is required to monitor for CBOD₂₀ on a quarterly basis. The sample should be taken concurrently with the BOD₅ sample. Should the docket holder establish a ratio between BOD₅ to CBOD₂₀ as a result of the nutrient monitoring program approved by Resolution No. 2010-5, the docket holder may request the removal of this monitoring entirely via letter to the Executive Director. Until the Executive Director has approved the elimination of the sampling, samples should continue as required.

BY THE COMMISSION

DATE APPROVED:

EXPIRATION DATE: March 31, 2016